

Aviation News

MCGRAW-HILL PUBLISHING COMPANY, INC.

JULY 3, 1944



Heads New Feeder Group: As president of the recently-organized Feeder Airlines Association, Harry R. Stringer (above) will direct its program for establishment of a network of feeder airlines and the general advancement of civil aviation. Stringer is vice-president of All American Aviation, the country's only air pickup service.

Harvard Surplus Report Studied

Analysis urges quick transfer of available aircraft, even during the war, in interest of post-war development.....Page 7

CPT Move Favors Civil Groups

Another measure expected to be introduced if present two-year bill does not carry over into peacetime.....Page 16

Better Metal Situation Hinted

Nelson's move to permit use of supplies where labor is available is interpreted as presaging relaxation.....Page 15

Value of Glider Forces Seen

New weapon was used effectively to hamstring Japs and later to disrupt Nazi lines during invasion.....Page 19

Executives' Salaries Rise 10%

Survey of schedules filed with CAB reveals that only six companies paid presidents more than \$25,000.....Page 35

15 More Planes Returned

Airlines' equipment units now up to 257, only 67 less than they had before the reduction in May, 1942.....Page 48

Air Mileage Near Pre-War Mark

Despite suspensions and loss of equipment, more than 44,000 miles in operation, compared with 45,132 before war..Page 39

Post-War Research Unit Named

Charles E. Wilson heads group formed to plan continuous development of aircraft and other equipment.....Page 29

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FOR AIRBORNE EQUIPMENT



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THE AVIATION NEWS

Washington Observer

MORE IN STORE FOR NAZIS—Germany's need of fire, bombs and bullets from swift will intensify as Allied invaders approach the Nazi homeland. Medium bombers, fighter bombers and other attack planes at advance bases in France and elsewhere will be able to reach enemy concentrations and military objectives with effective loads of munitions any time soon. Lockheed P-38, North American P-51s and Republic P-47s already have engaged most of Germany's fighter squadrons, but much of their present capacity was devoted to fuel-plus guns and armament. Air Force officials admit that the P-51 can carry 4,600 pounds of bombs. This would be short range, of course. Undoubtedly the other fighters can give about the same performance.

BRITISH AIRCRAFT INDUSTRY—A British aviation leader conceded recently that "we (the British) can never again be so delinquent as to allow our military aircraft to shrink to a dangerous low level and this means that the industry must be maintained on a high technical basis which will necessitate considerable expenditure by the government on research and development." This thought follows that of some of our own industry leaders who could give added emphasis to programs within our own industry. Separately, in the discussions about post-war aviation, the question of future air transport overshadowed future aircraft manufacture. The two invariably must go together.

FORCE FOR AVIATION—A high ranking member of Congress observed the other day that aviation—the nation's greatest industry—has no voice which is heard by Congress when legislation affecting the industry is pending. Virtually all other industries and related groups appear before various Congressional committees, but aviation, this member said, has been strangely

lacking in this respect. He referred not only to legislation affecting the industry directly, but to all manner of legislation which concerns the industry indirectly, one way or another. The few industry representatives who have appeared before Congressional committees have made a definite, favorable impression than House leaders said, and he mentioned J. Carlton Ward, Jr., specifically. Contention was that there should be more aviation representatives like Ward to let Congress know where the industry stands on issues affecting it.

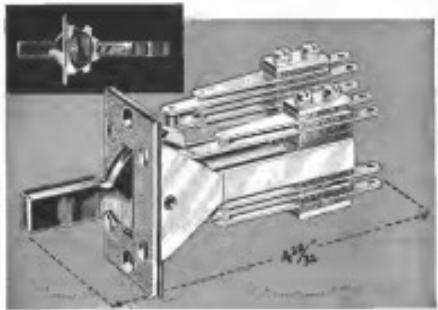
CONGRESS-SHY—There is little doubt that the industry has been somewhat leary of Washington appearances. Part of this probably goes back to the days when the industry was virtually dependent on military orders for its existence and there was a disinclination to make any move that might incur the displeasure of those who had a voice in the granting of contracts. Aviation has grown up since those days, however, and the government and the military need a strong aircraft manufacturing industry as a part of the nation's future safety and economy. Now, many government leaders, such as the Congressmen mentioned above, seek the views of aircraft industry leaders.

ROBOT DEFENSE—American anti-aircraft gunners moved into the south England inland territory to bolster defenses against Germany's relentless plane bombs had some experience in shooting down just such projectiles. American AA schools have used a rocket target since 1941. One has a speed of something like 450 mph. They were designed as an improvement on the plane-towed sleeve target.

SERVICE UNIFICATION—Although unification of the armed services now has been re-



Giant bomber lands on portable runway at Pacific base



This Light Weight, Heavy Duty MOSSMAN AIRCRAFT SWITCH Can't Be Jolted Out of Position

Positive locking of this Mossman O-42 Heavy Duty Lever Switch is insured by a silent mechanism which retains its position under extreme jar and vibration.

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RATING:
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INSULATION:
Spring-to-ground resistance 20 megohms; insulation resistance 200 megohms.

The Mossman O-42 Heavy Duty Lever Switch is one of a line of precision electrical components which includes many types of heavy duty, multiple switch lever switches, turn switches, push switches, plug bolts and special switching components. Send for catalog containing full information.

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Electrical Components

CONTACTS:
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WEIGHT:
4.00 ounces with 8 contact springs. Contact assemblies may include 8 springs per pair up to 16 per position, 32 total.

AVIATION NEWS

July 5, 1944

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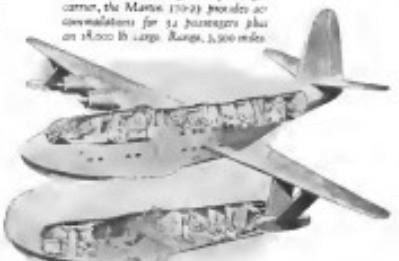
At war's end, Martin production lines will be cooled and warmed for fast delivery. If the industry is permitted to use surplus funds for such postwar construction and equipment, American aviation will be first in place as it is in war.

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July 3, 1944

AAF-Harvard Survey Asks Speedy Disposal of Surplus Airplanes

Analysis urges quick transfer of available aircraft, even during the war, in interest of postwar development of new models; suggests terminable-installment method.

By WILLIAM G. KEY

The Army and Navy should transfer surplus airplanes and components as soon as practicable, even during the war, is the urgent of their post-war development of new aircraft, and terminable-installment sale of transports to airlines as the most practical method of handling that problem, the Harvard School of Business Administration reports in a survey made for the Army Air Forces.

The report was released by the War Contracts Subcommittee of the Senate Military Affairs Committee after it had been submitted to Col. F. Trubee Davison, AAF Chief of the Special Projects Office and a member of the House Barbecue Committee. AAF's Barbecue committee, which is now drawing recommendations for the Surplus War Property Administration.

Rentless Mixed—Industry reaction to the Harvard report was sparse, since copies were extremely limited—the report first was held as a War Department document, not for general release and then was released through the Murray Subcommittee. "I would say that early reaction was not favorable," said one source, while another close to manufacturing orders said he felt that the report showed "considerable thought," but that it was "disappointing." Additional copies were to be available this week and possibly will draw comment.

The chief departure of the report from previously considered means of handling the surplus plane problem is in the recommendation for terminable-installment purchases of planes by airlines, rather than outright purchase or lease agreement.

Payment Methods—Since airlines have not yet paid for surplus planes being returned to commercial transport service by the AAF, the report may have a major bearing on the final decision as to the method of payment, over which there has been considerable discussion.

The Harvard group recommends that prices be based on commercial value, rather than cost to the Government, and points out that the terminable-installment method removes the element of chance from such factors as the length of the war and the economic life of the plane after the war. The report further suggests that under these terms of sale the Government pay all overhead costs, with the purchaser paying all modification costs. Thus, lines buying AC-47 for cargo use would pay no modification costs, while an airline during the best circumstances for passengers would pay between \$13,000 and \$39,000 for modifications.

Supply Limited—The report suggests that there may be fewer surplus transport planes than generally supposed. Attacks, excessive consumption of materials and the heavy movement of military and official personnel, emergency supplies and medicines in both occupied



COMMERCIAL VERSION OF THE LIBERATOR:

Latest photo released of Consolidated-Vultee Aircraft Corp.'s prototype Model 30, which flew to Washington last week to take high government officials on inspection flights. First drawings of this ship, the proposed commercial version of the Liberator bomber, appeared in AVIATION NEWS April 10 and April 17.

Europe and all sectors of China will absorb a substantial portion of the apparent surplus, the report states. However, it does anticipate that there will be an excess of C-47 and C-48 types above domestic commercial uses.

To utilize this excess supply, the Harvard report suggests that the planes be sold at sharply reduced prices for wartime non-combatant uses—ones that do not interfere with any traffic that would otherwise develop without low-price surplus equipment. It cites as an example certain contract operations, such as the movement of fresh fruit to northern industrial markets, which could be possible only with low-cost surplus equipment. It is suggested that the Civil Aeronautics Board would have to control disposition and use of such planes.

Last War Example—Pointing to the example of the last war, the Harvard report says that while there might be some advantage in maintaining as large a reserve of equipment as can be stored, the Army Air Forces will fare better in terms of adequate material if it diverts itself of all truly excess and obsolete wartime equipment.

To avoid confusion and criticism of the armed services, the report strongly recommends the handling of all material declared



AWPC ACCOUNTING COMMITTEE:

Changing military requirements for warplane production pose problems of major significance for top business leaders in the West Coast aircraft industry. Members of the West Coast Aircraft War Production Council's accounting committee also have a fiscal concern with other pressing industry problems, that of surplus materials redistribution being outstanding. Committee members are, left to right: Bradley E. Brown, controller, Lockheed; R. A. Lanthier, exec-

utive president and treasurer, North American; R. V. Hunt, vice-president and controller, Douglas; James C. Nease, controller, Russ Aeropropulsion Co., and L. G. Green, assistant controller, Consolidated Vultee. Standing is William F. Petree, AWPC account manager. Committee members who are not seen in this picture are M. E. Beaman, secretary-controller-controller, Boeing; and Claude N. Mease, treasurer, Martin.

Planes for CAB

The Civil Aeronautics Board is negotiating with the Army to acquire 15 Sikorsky S-51s from the U.S. Army's surplus inventories, most of whom are licensed pilots.

A small twin-engine transport for Board members may also be purchased. The S-51s are single-engine, two-place ships.

This, the report says, will be more valuable than small additional production of standard military models.

The report fears that air transportation work in rehabilitation of wartime planes may be carried on by the Air Transport Command, in which case planes would not appear as surplus, but would remove those planes from the surplus pool.

Ask Maximum Use Of Smaller Planes

Burned survey sees minimum loss to government and gain to civil aviation in careful disposal.

An effort to obtain maximum use of smaller types of non-military planes is recommended by the Harvard School of Business Administration report.

Emphasis in these sales would swing from rehabilitation and sale through the original manufacturer to overhaul, modification and sale by dealers.

Sales through modified auctions rather than sealed bids would be made, if the recommendations are followed, to encourage participation by small fixed-base operators and private users. An announced minimum price and posted bids would be used.

Plans to Be Scrapped—The Har-

vard report says that many of the surplus planes should be scrapped in the interest of air safety, and recommends that the balance be modified from military standards to meet civil air regulations before being offered for sale.

Dealers, under the recommendations, would be protected against undue inventory losses through a rebate system; quantity discounts—made cumulative to aid small dealers—would be an integral part of the system, and these would be as least, installment purchase or other complex financial arrangements to complete sales.

Price Factors—The Harvard report should be set out with a view to assuring the maximum possible distribution consistent with reasonable proceeds for the government. A lowering in prices, the report states, such as actually to decrease somewhat the total proceeds might be to the public interest if a much larger number of planes were distributed thereby stimulating the growth of civilian aviation.

The survey advises allocation or lease to approved schools of certain military trainers which would be used to accomplish specified training objectives valuable to the service.



MODEL HELICOPTER USED IN COAST GUARD TRAINING:

A model of the Sikorsky XRS helicopter—the result of 1,000 hours' work by Ernest H. Fraenzenberger, of the U. S. Coast Guard, is being used at the Coast Guard Air Station at Floyd Bennett Field, New York, Fraenzenberger, a



Sikorsky employee for eight years, has made it a perfect detail, even down to a fire extinguisher that can be lifted from its clamp. The model was displayed at the recent demonstration of Sikorsky heli-copters.

U. S. to Ship Excess Warplanes Home

Rules established for determining if aircraft are worth repairing and sending back to America for resale.

Kerosene aircraft in overseas theaters will be returned to this country if they can be restored to full operational or flying training use. The planes must be repairable within designated road-haulable limits.

Surplus Planes—As generated by the West Property Board, surplus will be circulated to local agents of the Foreign Economic Administration. The same category includes planes above local theater needs, while surplus planes are those beyond needs of the War Department in any theater or in this country.

Surplus Repairs—Planes found to be in excess of local theater needs and which would take more than the designated man-hours for repair, will be declared surplus and commanders of the various air forces are directed to "find every assistance" to the FEPA and contractors who might buy the planes in placing non-flyable planes in condition for delivery by flight "or other means."

Aircraft within range for flight return must be in some condition that they can be repaired for the flight back. Others will be sent back if they meet standards.

Hours Designated—Man-hours designated for the various types of planes are:

Single engine fighters 2,000, twin engine fighters 3,000, bomb transports 6,000, four engine transports 8,000, multi-engine bombers 8,000.

Locomotive-type aircraft and gliders will be virtually non-returnable, since they cannot be returned to this country unless already in condition for operational or flight training use.

Kerosene aircraft will be designated as returnable or non-returnable by a committee of three qualified military personnel and an AFM engineering officer.

Commissaries—Disposition of surplus aircraft will be designated by a similar military committee which may or may not be expanded to include a local representative of the State Department and the FEPA and FEPA.

Surplus aircraft ruled non-returnable will be utilized and turned over to a salvage officer.

Year Book Ready

The Aircraft Year Book for 1944, edited by Howard Minion, made its appearance last week, comprising over 700 pages of data on U. S. aviation participation in the war, Civil Air Patrol, wartime air transport industry, air training, work of the Federal Bureau, and sections on aviation facts and figures, aircraft designs and an aviation directory. The volume, an official publication of the Aerospace Chamber of Commerce, is published by Lancer Publishers, Inc., 10 Rockefeller Plaza, New York. Price is \$6.



ARTIST'S CONCEPTION OF ROBOT PLANE:

Hitler's boasted "secret weapons" looked like this to an artist in England. Attacks by his rocket boys have not affected military objectives, but have caused massive destruction and thousands of deaths in southern England. The bombs are propelled by a single jet engine in the nose (and drop the body of the bomb).

Navy Cuts Back On Pilot Training

Fewer men needed as ready-of-mission light aircraft men.

A downward revision of the Naval air training program is under way, since a study of the program makes it evident that the Navy must reduce substantially the number of men selected for pilot training.

The Navy is rapidly reaching the point where only replacement pilots need be trained. With the decrease in demand for large numbers of new pilots, it has been decided to lengthen the pilot training program.

Entries Reduced—Starting June 29, entries from the pre-flight stage of training into primary flight stage were reduced approximately one-third of the previously scheduled rate of entry. Reduction in pilot requirements are such that only about 30 percent of those students in stages earlier than primary training will be permitted to continue flight training.

Among the factors contributing to the revision is the unexpectedly low attrition rate of Navy and Marine pilots in actual combat. Their fighting qualities, superior training and equipment have produced a rate of survival nearly one-third greater than had been expected.

Cadets Notified—Rear Admiral A. W. Hartford, senior deputy chief of operations (air) has sent letters to cadets notifying them of the revised training programs and emphasizing who it is necessary.

A statement by the Department

and the Navy will offer these cadets the widest practicable choice as to their future service



GERMAN TRANSPORT:

This scene from a German newspaper, received from neutral sources in Lübeck, describes this as a motorized, armored troop carrier being placed aboard one of the Nazi's so-called "gliders," previously pictured in the news for transportation to the Russia front.

and it is hoped that the majority will elect to remain within the aeronautical organization.

14,500 Affected—While the Navy did not specify the number of air cadets who will be affected, some sources on Capitol Hill said between 16,000 and 18,000 probably would be dropped or diverted to other programs and that in the future new models will be selected from men already in the naval service.

The cutback in the Navy's program means that the AAFC, just a few weeks ago, transferred 36,000 pilot trainees to the ground forces and indicates that pilot training is well ahead of original estimates, a particularly significant trend at a time when combat tempo is up in all theaters.

End Wasp Recruiting

Recruiting of WASPs has been halted, Gen. H. H. Arnold, commanding general of the Army Air Forces, revealed last week.

The present training program for approximately 300 WASPs will be continued and the planes presently engaged in combat duty will be retained, Arnold said.

The attitude of Congress, which defeated a bill to incorporate the WASPs in the AAFC, is given as the reason for dropping the remaining programs.



STEAM POWER PLANT FOR AIRPLANES:

Pilot-scale production of a high efficiency steam power plant for planes is contemplated by Louis C. Troxka, a Chicago engineer. Three views of his engines are shown here. On the left is a side view, with the low-pressure cylinder at the upper left of the photo, the

reverse control below, the throttle is the right center and the main condenser at the bottom. Center photo shows a complete boiler, condenser, exchanger, fuel and water tanks on a test stand. Photo at right shows front view of the power plant on the test stand.

Claims Steam Plant For Post-War Planes

Flight tests in 1933, conducted on West Coast, resulted in new engine developed by Louis Troxka.

Plans of a Chicago inventor, Louis C. Troxka, for post-war production of a high-efficiency steam power plant for airplanes are of more than passing interest in the light of successful West Coast flight tests conducted in 1933 at Oakland, Calif.

A review of recent developments in metallurgy and heat transfer techniques, there is an indicated opportunity for a new comparison of steam and internal combustion engines with respect to power-weight ratio, fuel range, reliability, safety and operating and maintenance costs—S.B.

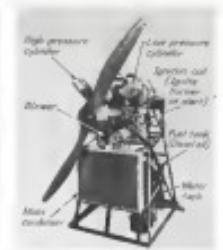
Condensers—The Troxka boiler, fired by a Diesel oil burner, maintained a steam temperature of 739 degrees Fahrenheit and a pressure of approximately 1888 psi. Condensers removed feedwater from exhaust steam developed from a 15-gallon water supply.

A two-cylinder double-acting compound engine was used, developing 550 hp at 1825 rpm under 1480 psi steam pressure.

The boiler and condensing system weighs 500 pounds and the unit weighs 180 pounds.

Placed in Plane—Installed in a two-gleam Diesel-type, the power plant developed a full head of steam within two minutes.

Because the boiler lacked pressure controls no effort was made to determine maximum speed flight range, or figures on operating economy.



Data Out on New GM Lightplane Engine

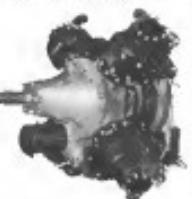
Powerplane expected to be strong competitor in power-unit market.

First detailed description of the General Motors experimental two-cycle four-cylinder liquid cooled engine, which has been undergoing flight tests in the Detroit area for more than a year, has recently become available to the public.

The engine which may be a strong post-war competitor in the lightplane powerplant field, has been tried down in a Cessna and is reported to be easily distinguishable from other aircraft by its peculiar high-pitched whine.

Rated at 380 hp—The compact, light powerplant, which has 350 cubic inch displacement according to the 1942 Aeroplane, is rated at 380 hp at 2500 rpm, weighs 375 pounds dry, or has a specific weight of 1.77 pounds per horsepower; a considerable weight savings over most engines of comparable power which average around two pounds per horsepower.

A centrifugal blower and all other accessories except electric generator are mounted on the rear and driven from the rear end of the crankshaft by a flexible drive gear. Fuel consumption is given as .034 pounds per horsepower hour at 75 percent power. Standard equipment includes dual battery-type igniter and GM carburetor, with provision for fuel pump, vacuum pump, dual indicator drives, automotive type starters and generators.



New GM Power Engine—Three views from report of General Motors Research Laboratories Model X-294-B, a two-cycle, four-cylinder liquid-cooled powerplant which has been undergoing flight tests in a Cessna is the Detroit area for the last year.



GRUMMAN TORPEDO PLANE FIRES ROCKETS:

Rocket installations on the underside of the wings are clearly visible in this new photo of a Grumman Avenger swooping up at the flight deck of an aircraft carrier.

FEDERAL DIGEST

Piston Ring Plant Problems Discussed

Summary of week's activities in U. S. and war agencies.

By MARIE PAULINE FERRY

War Production Board's Warplane Manufacturing Industry Advisory Committee is meeting to discuss the many problems in the effect of aircraft cutback on the production of automotive type piston rings, status of Canadian production, and the need for a price increase to maintain production of piston rings for other than aircraft uses.

Small plants will be granted some relief from production quota restrictions under a plan approved by the Smaller War Plants Corp. Under the plan small plants may increase their operations to a rate which is equal to the over-all industry rate of production for any given civilian item. Compensation will be on production both for civilian use and for military end use.

WPS Form 817—Applicants who normally use WPS Form 817 to obtain exemptions under Conservation Order L-81 to acquire or construct facilities are advised to follow the revised instructions for filing this form, which are effective now.

WPS said that in making returns of unused allotments to claimant agencies or WPS industry divisions, smaller consumers of controlled materials should make separate returns for each different item they are manufacturing and

for which they have unused allotments.

♦ Radio Equipment—Due to increased requirements for the last half of 1944 for radio and electronic equipment supplies, any increase for civilians is unlikely in the near future, WPS said.

War Operations Price Adjustment Board recommended publication of a detailed circular on the subject of radio communication equipment in the fall, according to the Bureau of the Budget.

♦ Defense Dept. Letter—Reported average monthly cost of aircraft and aircraft parts was \$10,000, previous month was \$10,000, and the year-to-date total was \$100,000.

The Department estimated current aircraft production costs at \$10,000 per aircraft, and average monthly losses at \$17,500.

♦ Production—A bill has been introduced in the House to extend the Small War Plants Corp. Bill, as a result of recommendations of the Small War Plants Corp. War Resources Board, as an effort to increase the scope of domestic War Production.

It is designed to provide for improvements in Army and Navy procurement methods.

Army and Navy DPA offices have been

reinforced by additional War Re-

source Officers.

Under the bill, the War Re-

source Officers will be authorized

and directed to make

and coordinate



TWO-PLACE P-40:

Powered by a 900-hp Pratt & Whitney engine, a two-place Curtiss P-40 is shown over the AAF tactical center at Orlando, Fla. Believed to be the only one of this design in existence, the two-place Hawk was built from a standard stripped P-40 by technicians at the AAFTAC sub-depot. It is used for training purposes and for important military personnel who need fast transportation.

Pressure Chamber Data Used on B-29

Results of altitude tests made at Wright Field is released after Superfortress test on Japan.

The part made 180 soldiers and civilians in the AAF Material Command at Wright Field played a role in developing the pressurized cabin of the Boeing B-29 Superfortress, has been released by the War Department following the recent raid on Japan.

Under the direction of a former college professor, Maj. Henry N. Sweeny of the aero-medical laboratory, the technicians conducted approximately 200 experimental tests to show the effect of "explosive decompression" caused by sudden release of pressure from the cabin, similar to that which would be caused if the bomber in combat was hit directly.

Surgeons Take Tests — Maj. Sweeny was the first to prove he could take "explosive decompression" again and again, while all flight surgeons now with the B-29 crews as well as the chief surgeon for the 38th Air Force, Col. Robert Beauford, also participated in the experiments as part of their training following a special study of pressurized cabins.

The experiments, running for a year and a half, involved both flight tests and tests in pressure chambers. In making his first test, Major Sweeny entered a pressurized cabin made a pressure chamber. Wrapping paper sealed a round

opening in the cabin. Pressure in the cabin was kept approximately normal, while increasing pressure in the chamber was increased until it was equivalent to that in the atmosphere. Some scientists believed that the sudden change in pressure would cause serious injury, or even death. Sweeney believed the human body could take it.

Seal Broken — The wrapping paper seal was broken with a screwdriver, and we gathered from the cabin into the surrounding chamber. Observers, through windows, watched Major Sweeny's changes. His skin turned dark as air was released from his nose and mouth. His chest squirmed as air was literally squeezed out of him. But he experienced no serious discomfort, and pulled his oxygen mask over his face to compensate for thin air.

Many other experiments followed. First "explosive decompression" in flight took place when a war gas blower "blew out" a had live, at 30,000 feet. There was no serious consequence.

Gauge Test — The flight tests included puncturing the supercharged cabin with test gauges while the plane was aloft. An officer and civilian observer in the plane felt a drop in temperature and saw a few ice crystals within the plane were unchanged.

The B-29 experimental group reports that the most rapid decompression is a result of puncturing the cabin is not sufficient to cause death," the scientist suffered by dives and jumps as a result of extreme change in pressure within a very short time.

Riddle's Interest In Air School Sold

John Paul Riddle has sold his interest in Embry-Riddle School of Aviation, largest civilian aviation school in the country, and will concentrate on the expansion of the technical school of aviation he operates for the Brazilian Air Ministry at São Paulo, Brazil, and other foreign business. His interest has been acquired by John G. McKee, Miami attorney, and his associates.

Operations at the Beechtree school will be doubled within the next six months, and Riddle will continue to train American instructors at Miami in Portuguese and Latin-American customs for use at that school.

Headquarters in Miami — He will continue temporarily with Embry-Riddle until a new executive setup has been completed by McKee, and working arrangements between the domestic and foreign schools presently will be rearranged. Riddle expects to spend half his time in this country and will maintain headquarters in Miami. McKee has been co-owner with Riddle of Riddle-McKee Aero College at Clewiston, Fla., and is vice-president and counsel of Embry-Riddle Co.

American Patented Robot Plane in '18

Robot planes have been known in the United States since the last war and consequently are neither new nor secret, the National Inventors Council says.

At least two Americans invented aerial torpedoes, according to the German patent offices, as long ago as the last war. Lawrence Bar Sweeny applied for a patent for an aerial torpedo of the surface type on April 18, 1918, and the patent was granted on May 22, 1925.

File by Krieger — The other was Dr. Charles F. Krieger, of General Motors Research Corp., now chairman of the National Inventors Council, who applied Aug. 25, 1919, for a patent on an aerial torpedo that is a self-propelled surface carrying a large charge of explosive and having control mechanism adapted so to direct its movement that it may be caused to travel over the desired path and land upon a predetermined objective. The invention was patented April 2, 1925.

The B-29 experimental group reports that the most rapid decompression is a result of puncturing the cabin is not sufficient to cause death," the scientist suffered by dives and jumps as a result of extreme change in pressure within a very short time.

Lifting of Magnesium, Aluminum Ban Hints Better Metal Situation

Nelson's move to permit use of supplies where labor is available is interpreted as portaging relaxation of restrictions in other categories.

When WPA Chairman Donald M. Nelson last week instructed WPA offices to review all orders limiting the use of magnesium and aluminum so that manufacturers could fabricate the light metals into "essential and products" whenever manpower was available, he brought into the public consciousness again the entire materials supply subject.

Although it has only been slightly more than a year ago, many people have forgotten the confused, turbulent days when WPA's greatest problem was restricting to the danger point the small quantity of the critical materials—steel, copper, and aluminum. During that period, lights burned brightly in the office of the chairman of the Requirements Committee, who, meeting almost daily, never-endingly charted strength to change the ratio quantities of materials to the places where they would do the most good.

Aircraft Favored — Then the aircraft program—and two other campamento programs—was the fief-hailed child. Aluminum was more dear than gold, and in meetings of the Requirements Committee even owners of the last metals were carefully budgeted for.

Now the picture has changed, suddenly and somewhat desolately. In the scrappage of event aircraft plant in the country are piles of surplus aluminum.

Government officials have stopped worrying about what to do with it. Plant managers look hopefully for markets for their scrap. Although aluminum remains one of the three "controlled" materials carefully regulated by the CMP plan, it is no secret that there are many materials more scarce.

Steel Tightened — But even as Re-publican power over the surplus aluminum stocks was requirements tightened to disastrous and incongruous problems arose. Steel suddenly became tight, and WPA formally acknowledged that the steel situation looked dark.

The chief shortage in the steel picture was in sheet metal, which is now being demanded in larger quantities for use in tanks and heavy artillery shell cases. The stepped-up requirement in production which normally follows extremely warm weather have made the sheet steel situation more perilous than at any time

since the beginning of the war.

The two opposing problems are now giving industry a taste of what many production leaders have predicted all along that for some time before reactivation actually comes there will be sharp fluctuations in military requirements and, pending stability, there will be both abundance and want.

Navy Taking Over Brewster Johnsville

New announces that it is taking over the Johnsville (Pa.) plant of Brewster Aeronautical Corp., as an aircraft modification and engineering center, and will begin operations there this week. It expects to provide jobs for about 1,500 of the 3,500 employees.

It is understood that the Navy started taking over of the plant because of the condition of the resources there, and there was talk for a time of Army ordnance taking over the operation as a shell-loading plant.

Built by DPC — The Johnsville plant will be operated as an adjunct to the Naval Air Materiel Center at Philadelphia. Plans to turn the aircraft adjoining the factory—built by Defense Plant Corp. at a cost of \$4,500,000 in 1941—are reported to be in had shape.

There has been conjecture in aviation circles that the Navy hopes to make the Johnsville plant a permanent part of the Naval air program as an adjunct to the Philadelphia Naval aircraft factory. It is approximately 20 miles north of Philadelphia and a new \$4,000,000 permanent housing project adjacent it. The housing project will accommodate 1,200 families.

Ace's Specifications For Post-War Plane

Maj. Richard J. Wong, ranking Pacific ace with 37 Jap planes to his credit, given for the first time his idea of the personal airplane that pilots of fast combat warplanes will want to buy after the war.

"It should be a four-passenger airplane, and it'd be satisfied with a cruising speed of around 150 miles per hour. I'd like to be surprised. It should be equipped with 600 pounds 'Landing speed.' I have thought much about that—it does not hold water. I would like to be able to buy it for around two thousand to twenty-five hundred dollars."

PRIVATE FLYING

CPT Extension Keeps Civil Groups In Control of AAF Primary Training

Another measure expected to be introduced if present two-year bill does not carry over into peacetime.

By BLAINE STUBBLEFIELD

Extension for two years of the Civil Pilot Training Program, as set by Congress, is a strategic move by the civilian aviation group in its long contest with the Army and Navy for control of military primary training.

Civilian interests, represented by Senator Pat McCarran, who wrote the Senate bill, wanted a five-year extension. The House Interstate and Foreign Commerce Committee cut it to one year, and the joint Senate-House conference committee compromised on two years. In case this two-year period does not reach the peace time, another extension bill could easily be introduced when the CPT program again comes up, June 30, 1948. Senators wanted the CPT act kept alive as a trading post and as a nucleus around which to build a permanent program.

Hold Up in Committee — The House Commerce Committee held up the CPT extension and cut it to one year on the ground that the pending Lee Bill reviving the civil air law, months ago knocked cold by the House Rules Committee, provides for civil aviation training. Civilian flying groups, holding sway now for extension, relied on HR-2418 to drown the bill and force action now on CPT, and get it.

Civilian groups referred to are the Civil Aerodynamics Association, National Aeromantic Association, National Aviation Trades Association, Personnel Aircraft Council of the Aeromantic Chamber of Commerce, Association of American Colleges, and others. These organizations, working with various degrees of enthusiasm, not only won the best for CPT, but they will have the advantage in future attempts to score on the Army and Navy air arms.

Advantages — Their advantages is that the military services are not allowed to talk about their post-war plans, though they certainly

have them. Possibly the air forces, whose training requirements dwarf those of naval aviation, have no official post-war training policy. But individual AAF officers have ideas on the subject and are guarding them around.

Ideally, the Army would like to have permanent selective service in peace time, and the Air Force would like to pick their men for processing through great West Posts of the Air, like Randolph Field, all on a purely military basis, building up a strong reserve of air crews which could meet any emergency. At least one year of each man's life, therefore, per year, would be taken for military use, and for between high school and college.

Failing to act at first, air forces will take all the control if one gets over semi-military air training in the country's schools and colleges. **Depends on Policy** — The outcome depends much on whether the country goes in for continued military preparedness, whether voluntary selective service is adopted, and on the extent to which Congress tightens its grip on public money.

Majority opinion seems to be that a popular swing to economy, and a desire to keep the military in operation of the aerospace as a utility, will give the civil groups a good chance to gain their ends. On the other hand, this country, having had two bitter lessons in the results of complacency, the armed forces will get recognition. This could very well result in a compromise, with fixed base operators and professional flight schools processing the men, under close regulation and supervision by the Army and Navy air arms.

CPT More Likely — Almost certainly, legislation will be proposed by the civil groups. A fair indication of what its provisions will be is seen in recent articles in the National Aeromantic Association's magazine. These articles point out



Asks Extension: W. L. Jack McLean, aviation editor of W. A. M. Gardner, who renounces that the Joint Aircraft Committee be disbanded after the war in order to coordinate the Civil Air Training Program.

that civil air training produced legions of winning pilots when the Army was helpless to do so in the emergency; that such a successful institution should be continued; that extensive studies resulted at all levels should be utilized in the Army's defense; that aviation transport carriers should be broadly scattered and easy of access.

Jack Nelson of CAA recommends that the Joint Aircraft Committee, on which Army, Navy and CAA were represented, be continued after the war to coordinate the civil air training program. He believes 100,000 to 200,000 pilots constantly in process, 1,000 to 6,000 schools would be desirable.

CPT Training Program — citing CPT history, largely forgotten in the turmoil of war, the NSA suggests itself that in 1938 National Youth Administration funds trained 300 students in primary flight. In the same year, CPT was authorized by Congress and received an appropriation of \$4,000,000. War Training Service succeeded CPT—a mere change of name—in December, 1941.

Gen. H. H. Arnold, chief of the Air Forces, paid early in the war that AAF could not train 3,000 pilots a year. CPT, later WTS, ran the rate up to 12,000 a year, then to 30,000, and on up. Total pilot output was 373,000. Total cost of the program was \$350,000,000. By March, 1946, 113,883 hours had been flown by CPT personnel, castles, instructors, and air crews.

They wouldn't fly without them...



A bracelet of cat's-eye stones collected from a South Sea lagoon, hung around the "droppings" hand of a bombardier through twenty months of combat flying.



On every mission a sentimental farm boy, now a tail gunner, carried a small sack of the good earth from the farm back home.



A tail feather pulled out of a bosom bird on Midway Island decorated the flight cap of a navigator on more than 50 missions in the South West Pacific.

Ethyl antiknock fluid goes along with fighting planes powered by U.S. made gasoline. It goes into practically every gallon of fighting grade aviation fuel—which is one reason why our fliers not only have the best gasoline but plenty of it.

ETHYL CORPORATION
Chrysler Building, New York City



ETHYL is a
trade mark name



JUNKERS Ju-87 IN NEW ROLE:

The Junkers Ju-87, retired from Germany's first line strength some time ago, has been rejuvenated and modified for use as an anti-tank plane with two large-bore canons mounted under the wings.

used in our antiaircraft operations can be applied to aerial invasions.

Mobile Use of Airborne Forces—Mobile forces and particularly glider forces can be used in the efficient to exploit breakthroughs or to support flanking operations where success can be achieved through the rapid commitment of the flanking forces. Glider troops and their equipment can be landed in the rear of the enemy lines that are being attacked frontally, to seal the area against reserves. Small glider forces can be moved into the enemy's lines of communication by night landings to raise, to destroy, and can be evacuated through the use of pack-up gliders.

On the defensive, the use of airborne strategic reserves capable of moving mass hundreds of miles in a few hours' notice should ease the field commanders task.

Counter Measures—If the enemy executes a break through, glider-borne reserves can either move in to contain him or land behind him to cut off the break through. Airborne is an equally effective counter against flanking operations.

The only real defense against enemy airborne forces are alert airborne forces of our own that can move against any enemy airborne forces directly behind our frontlines.

Service Uses—Gliders and pack-up gliders have innumerable service uses. First of all, gliders have been used to rush emergency supplies of ammunition and food from England to the fields directly behind our forces in France. More valuable handling time was saved by being able to land the gliders almost on the front lines. This technique of air movement of emergency supplies directly from depots to the combat units with-

out a number of intermediate landing should prove very valuable in the future.

There are a number of mobile service units that can be mounted in gliders to be moved from tank to tank over wide areas by pack-up teams. A partial listing will indicate the work that can be done with a relatively few gliders and even smaller number of pack-up units.

Mobile field dressing station.

Bivouac unit.

Aircraft repair shop.

Glider repair shop.

Ordnance repair shop.

Motor vehicle repair shop.

Communication repair shop.

Airborne engineer equipment.

Mobile command post.

Mobile field hospital.

Mobile aircraft search station.

Mobile antiaircraft unit.

Mobile shower station.

Mobile decontamination station.

Mobile shoe and/or clothing repair shop.

Mobile refrigeration unit.

Our use of the glider for military purposes has only begun. It has been successfully employed in the defeat of the enemy at a casualty rate that would not otherwise have been possible and if applied with the intent to future operations, the glider should be very effective in speeding our victory.

NAVIGATOR

Dutch Plane Toll

The Netherlands Indies army air force has continued the fight against the enemy; their North American B-25 Mitchell bombers—squadrons having dropped more than 48,000 pounds of bombs on Jap bases in the last three months. The squadron claims 4,600 tons of enemy shipping sunk and additional thousands "probably sunk."

Closed Schools to Store RCAF Craft

Royal Canadian Air Force training stations being closed this year are to be used as storage depots for aircraft equipment. The 28 schools involved to be turned over eventually to the War Assets Corp. set up by the government to realize on wartime equipment.

Storage Depots—It is expected in Ottawa that these centers will be placed under the Department of Transport for later use in development of civil aviation in Canada. Meanwhile they will be used as storage depots.

RCAF in Iceland

A Royal Canadian Air Force Cano Flight has again arrived as a non-lethal self-contained all-Canadian unit in Iceland last January, the first time a squadron went overseas complete, it is disclosed at Ottawa.

Ground crews required for intermediate maintenance of aircraft was flown in and the rest of ground personnel and equipment were packed into two 558-lb. wooden skids of the RCAF marine section, hauling the worst storm in the last five winters. The squadron is now making submarine sweeps and doing coast-patrol work under Wing Commander C. G. W. Chapman.



RADIO-EQUIPPED RAFT

Photo shows one-man-type life raft in a recent underwater demonstration at Avonan, Tex. By jumping the crash on top of the "Gibson girl" emergency transmitters, the soldier is sending out on SOS

New Hydraulic Wiper Motor

WEIGHS 1 POUND, SMALL, POWERFUL, EASY TO INSTALL

A complete motive unit, easily tied into the airplane hydraulic system, this motor produces ample power for the operation of windshield wiper blades across flat, curved or compound curved glasses. The motor has high torque, permitting a blade speed up to 400 strokes per minute during flight. Contributing to the efficient design of the new unit is our experience, gained from pioneering and producing the wipers now used by the U. S. airlines and air forces of the Army and Navy.

The **Marguerite**
METAL PRODUCTS COMPANY
Cleveland 10, Ohio



PERSONNEL

J. Earl Steinhauer, assistant manager of Washington National Airport, is leaving government service to join Fairchild Engine and Airplane Corp., at Elizabethport, N.J. Steinhauer started as a mechanic at old



Steinhauer

Hopover Field about 1924, and has been prominent in private flying efforts for many years through the Washington Air Derby Association and in 1938 received the Derby award for doing most for flying that year. In 1942 he organized and installed the first civilian flight training program of the District. He became spokesman manager of the National Airport in 1944, later becoming assistant manager.

Charles V. Morrison has joined Jeraidoff Aviation Corp., an aircraft repair organization, as vice-president responsible for insurance, along with John Hancock Mutual Life Insurance Co.

John Howard Pease has resigned as manager of the economic development department of the Aerospace Chamber of Commerce to enter private practice as an economic consultant.

Recent changes at the Navy's Bureau of Aeronautics and Office of the Deputy Chief of Naval Operations for Materiel have detected the loss of Cmdr. Willis E. Sams, who had served as aide to the Deputy Chief of Naval Operations for Air, management of Cmdr. Harry Sams to aviation planning division, base logistic services; and Cmdr. John F. Petersen, Jr., from aviation training division, flight transportation. Capt. Jack Thorberg has been detached from the Naval Air Transport Service, operations section and Capt. Charles E. Majapes has been detached from

aviation planning division, lighter-than-air section.

Harry McKay, test pilot and flight captain of Consolidated Vultee Aircraft Corp., Louisville, Colorado, has been appointed chief of flight and field operations, replacing Howard Knobles, who has gone to the Allentown division. McKay has flown for Mid-Continent Airlines and for Transoceanic and Western Air, Inc. He was pilot instructor for TWA's Pan-American school.

W. J. Bleazard, general manager of Aeroprecision, has been elected president of the Dayton Chamber of Commerce. Paul L. Hartman, who was also named director of the chamber, has just completed his second term as president of the Dayton Engineers Club.

Brigadier Gen. Alvin Saxon, of the Army Air Forces and the Joint Strategic Planning Board, Washington, has returned to Washington accompanied by two civilian employees of the Brazilian Ministry of Aeronautics, Ivan Ernesto Soave Gómez and Eliakim M. Meissner.

William A. Strook (photo) has been appointed president and general manager of TACA, Airways Agency, Inc., to all the company created by the reorganization of TACA. L. E. Reed will remain vice-president and general counsel. Strook

was previously secretary and treasurer of the company, was made vice-president in 1932 and vice-president and general manager in 1938.

Major Lloyd D. Mitchell, executive officer, public relations section, Army Air Forces Materiel Command Headquarters, has been promoted from the rank of captain. Before becoming transferred Wright Field, Major Mitchell was public relations and press services officer with the AAF Training Command at Barksdale. In civilian life he was active in theater enterprises in California.

Eugene R. Gordon has resigned as vice-president and general manager of Wright Aeronautical Corp. and will be succeeded by G. M. Williams, senior vice-president of Curtiss-Wright Corp., with whom Gordon has been working for more than a year prior to his departure. With this change, the executive administration of Wright Aeronautical will be carried out by Williams and Philip S. Taylor, vice-president and general manager of Wright Aeronautical. Gordon joined Wright a few years ago, when the company was merged with the Curtiss interests. He went to Fairchild as



HEADS AERONCA:

John W. Friedlander has been named president of Aerocraft Corp., Middleboro, Mass., succeeding his brother, Carl Friedlander, who has elected a vice-president. The new president was formerly executive vice-president. Aerocraft also announces advancement of E. S. Shulander from vice-president to executive vice-president and election of A. M. Helmers as secretary-treasurer. Helmers formerly acted as treasurer. E. M. Wadsworth continues as vice-president and director of purchases and Al Bennett as director of sales. John Friedlander is an experienced pilot flying his Aerocraft for business trips.

General operations and financial controller for the TACA system. Named to his present position by the board of directors, he will supervise administration appearing in the U.S. TACA conference headed by Lowell Yerkes.

Wright Aeronautical Corp. and will be succeeded by G. M. Williams, senior vice-president of Curtiss-Wright Corp., with whom Gordon has been working for more than a year prior to his departure. With this change, the executive administration of Wright Aeronautical will be carried out by Williams and Philip S. Taylor, vice-president and general manager of Wright Aeronautical. Gordon joined Wright a few years ago, when the company was merged with the Curtiss interests. He went to Fairchild as



Diagram
PATENT APPROVED FOR
Approved by A.A.T.

Puts planes in the air faster

Designed and engineered by Hartwell, this new inspection door latch, H-405 can save as much as 15 minutes in the inspection of a single plane, in addition to the inspection door and gas flush with the outer surface weight less than 1/2 oz.

The new Hartwell latch has been approved



Front view of Hartwell door latch



Side view showing latch in open position

Can be used on inspection doors of any size or shape

Because of its design and construction, the Hartwell door latches can be used with metal, plastic or plywood of varying thicknesses, and on inspection doors of any size or shape. It can also be used without a hinge, where

multiple latches installations are employed, as indicated above.

The transfer of latches used per inspection door depends upon its size, shape and load and whether or not a hinge is used.



Press and the Door Flaps Open

Push-up pressure on the trigger of the Hartwell inspection door latch releases the bolt, permitting the door to pop open. Pressure on the bolt holds the door in place. It eliminates the former slow tedious removal and replacement of inspection doors.

Single source for 279 different aircraft production parts and tools

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AVIATION SUPPLY COMPANY

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400 an hour!



... bearing cutting at anywhere near mass production rate... was considered an impossibility until dressing was called in. Now 400 bearings on hour can be made — reducing "dressing" time and eliminating hot spot replacements.

Because of the unevenness of bearing bores, dressing requires a maximum and minimum cutting speed and dressed cutting blades to cover maximum bore variance. Cutting at 30 rpm per minute with a 120 foot return trip surface, Star, 32° stroke Lapierre Surface Dressing Machine produces a finished bore finish to .0001 tolerance and is one of the fastest cycle time machines on the market. It has a special abrasive feature that makes loading and unloading easy. Each of the cutting blades removes a maximum of .010 stock stroke, when maximum stock is to be removed, and are so arranged that regardless of thickness of habitat the bearing comes out completely finished well within tolerance. It operates

1. Work is put in place starting cycle
2. Fixture moves into cutting position
3. Machine slide completes cutting stroke
4. Fixture returns to start stage
5. Main slide returns ready for next cycle.

It's the machine, the broach and the bearing design engineers who made the pertinent contribution to production.



APONTE Machine Tool Company

WORCESTER, MASSACHUSETTS U. S. A.

MANUFACTURERS OF BROACHES AND DRESSING MACHINES

the Army was being developed. He was sent to the Air Transport Command to help in making recommendations on the distribution of cargo-craft costs between commercial and contract services.

Don V. Seaver, assistant to the president of All American Aviation, Inc., will have charge of the Washington office being set up by Federated Airlines Association. Seaver is managing secretary-treasurer of the asso-

ciation of Air Transport Association, representing U. S. and Canadian airlines. Abreus succeeds Vance Verner, American Airlines director of personnel.

Ronald M. Swasey has been named supervisor and manager of Bucyrus Vacuum Cleaners, Inc., a producer of high-precision aircraft control motors. Swasey was originally a technical and personnel director of the Bert Thompson Manufacturing Co.

Ralph A. Baird, Assistant Secretary of the Navy, has been appointed vice-president, replacing the late Navy Secretary James V. Forrestal. Baird has been in the financing and development business, concentrating on small firms. From 1934 until he became a civilian leader of the Navy, he was president of Ralph A. Baird and Co. He has acted as president and director of several other investment trusts in recent years.

Holton W. "Holt" Cook, resident representative for American Airlines at Douglas Aircraft Co.'s Santa Monica plant, has been promoted to 20th month anniversary with the airline. Cook, who holds one of the earliest pilot's licenses issued by the CAA in 1929, has worked with the development of commercial airlines in this country, Canada and Great Britain.

Lois G. Hoyle, who has been associated with Curtiss-Wright Corp. since 1938, has been appointed director of quality for the aircraft division. With headquarters in Buffalo, Blackie was formerly quality manager of the Curtiss-Wright airplane plant in Columbus, Ohio. He has been a project engineer on Navy observation planes and originated the first engineering human group.

C. L. Treadwell, vice-president of Faro Corporation and Instrument Corp., New York, has been given the added duties of secretary of the company. The former secretary, James S. Gaines, Jr., is now in the Army.

Lester Del Roberst F. See, who has been in the service since 1940 from his duties as president of Continental Air Lines, has returned to his executive position with the airline. See has been reassigned to inactive status as an Army officer, due to physical disabilities incurred in the line of duty while serving with the Air Transport Command at Marion Field, West Palm Beach, Fla.

Howard Meissner, president of Hawthorne School of Aeronautics and Hawthorne Flying Service, Inc., was



SURPLUS AIRCRAFT HEAD:
Promoted to Lieutenant Colonel, William B. Hardison, whose appointment as director of the Standard War Property Administration's Airplane Division was announced in last week's AVIATION NEWS. He is on military duty from the Army Air Forces at present.

selected as the outstanding young business man of South Carolina by the Junior Chamber of Commerce.

L. A. Gossage, formerly executive assistant to President Dan P. Smith, has been appointed treasurer of Interstate Aircraft & Engineering Corp., W. C. Barnes, formerly assistant secretary-treasurer, was named secretary. These two executives will assume the duties of former secretary-treasurer L. B. Gossage who recently resigned.

Fred Deems has just completed fifteen years service with Pan American Airways. He is now manager of maintenance supervisor at PAA's Atlantic Terminal at La Guardia Field, La. N. Y. When Pan-American Clipper operations were started at Port Wing, Wis., in 1938, he was attached to the base in charge of the radio station.

Henry Miller has been appointed chief of flight and field operations of the Louisville Division of Consolidated Vultee, succeeded H. M. Kornblith, who has transferred to the Atlanta Division. Employed by Consolidated Vultee since 1942, Mr. Miller was formerly with Mid-Continent Airlines, leaving there to go with TWA as an instructor in their four-engine school in Albuquerque, then to Consolidated Vultee, San Diego.



Hoyle

sociation of pickup and feeder lines. He has been in aviation for 18 years. He learned to fly in World War I. Since that time he has been a barnstormer, an aerial pilot, instructor, airport manager and has been active in aviation clubs. He joined All Americans in 1938.

D. E. Hyde has become chief of Industrial Relations for the Transocean division of Commercial Vitek Aircraft Corp., replacing B. M. Weiler, who has been transferred to the Albatross division as chief of Industrial Relations. Hyde has been head of the employee service department.

Arthur E. Davies, Associated Press reporter for nine years, was corresponding to the Pacific for AP in Honolulu, his beat covering the military staff of Northwest Airlines. He has been a noted public-relations representative for the newspaper, and a member of its board of directors.

John B. Bangs has been appointed manager of the Boeing plant in Seattle and will cover the territory between Bellingham, Mount, and the West Coast. When Bangs left the Pacific to return to the country he received a special letter of commendation from Maj. Gen. Nathan E. Twining, commander of aircraft at the Spokane

R. E. Ahrens, director of personnel of United Air Lines, has been elected chairman of the personnel committee

Trail Blazing in the Skies

HOW GOODYEAR AIRCRAFT CORPORATION SERVES THE AIRCRAFT INDUSTRY

1. By constructing *invaluable* tooling to manufacture specifications.
2. By designing parts for all types of airplanes.
3. By re-engineering parts for quantity production.
4. By building complete airplanes and aircrafts.
5. By extending the facilities of Goodyear Research to aid the solution of any design or engineering problem.

PIONEERING NEW METHODS



SAVING HOURS IN METAL FORMING OPERATIONS —

Another recent development speeding production at Goodyear Aircraft Corporation is a new universal chuck for gripping materials in metal working equipment. Conventional chucks require two to three hours for dismounting and fitting with different, expensive machined jaws every time a different shaped part is to be machined. The new Goodyear chuck requires only a few minutes for the change-over — and uses jaws cut from an inexpensive material. Thus the productive time of these important metal forming machines is increased by several hours a day, and time-consuming jaw machining operations are practically eliminated. This new, fast-action chuck is, therefore, an important contribution to America's aircraft program. It's one more example of Goodyear pioneering and leadership.

BUILDING PROVEN AIRCRAFT



1,000 CORSAIRS IN RECORD TIME — In little more than a year after completing its first Corsair, Goodyear Aircraft Corporation had produced a full thousand of these crack fighters. This production of a new type of ship was achieved in a completely new plant, and the battle-front record of the Goodyear-built Corsairs used by the U. S. Marines shows how well the job was done. The ability to attain volume production so quickly and so competently stems from Goodyear's thirty years' experience in aeronautical engineering — a background armed with many notable developments in aircraft design and fabrication that make Goodyear one of America's foremost names in aeronautics.

BUT
WAR BONDS
BUY
FOR KEEPS

GOOD  YEAR
AIRCRAFT





ON COURSE!

You may have to explain the picture to non-fliers. It is not an airplane. Capt. Albert "Peeky" Steinback, veteran United Air Lines pilot, is at the controls. He is approaching a Pacific Ocean port, with visibility zero - in the link train.

Steinback says that his altitude is 1,600 feet, air speed 160 miles per hour. The rhythmic dash of the Micro "A" in his earphones is merging tessellately now with the dash-dot-dot of the "N" sig rot, which tells him he has found the "on-course" signal. He is on the beam.

Veteran "Peeky" Steinback knows he has to follow the beam to the "cone of silence," a dead spot of radio. When the beam beam dies off to silence and then resumes, he has his exact location with respect to the airport. Following instructions from the airport control tower, he now is prepared to land.

That United Air Lines pilot practices approaches to distant ports in the link - without leaving the

ground! Thorough training in instrument flying has served United's pilots well—on 880 Pacific Ocean crossings in 1945, flying men and materials to faraway front. United crews also chalked up 2,400 military flights in the Western Hemisphere last year, besides flying the company's regular nation-wide passenger, mail and express schedules.



CAPT. ALBERT "PEEKY" STEINBACK, United Air Lines, practices in the Link at United Air Lines San Francisco terminal under the watchful eye of Link Instructor Elmer Ebbé.

LINK AVIATION DEVICES, INC. - BINGHAMTON, NEW YORK
LINK MANUFACTURING COMPANY, LTD., GLENMORE, ONTARIO
Link Trainers, Aviation Instruments and other products contributing to the safety of flight

AIRCRAFT PRODUCTION

Post-War Research Committee For Armed Forces Named

Charles E. Wilson heads group formed to plan continuous development of aircraft and other equipment.

The full list of service members on the new joint research committee appointed to work out plans for continuous research development of aircraft and equipment for the armed services was announced last week.

Charles E. Wilson, vice-chairman of War Production Board and chairman of Aircraft Production Board, is chairman of the committee, which has held its organization meeting.

For the Army, in addition to Brig. Gen. William F. Tompkins, director of the Special Planning Division of the General Staff, will be Maj. Gen. Oliver P. Schulz, assistant chief of air staff, materiel maintenance and distribution; Maj. Gen. Albert W. Waldron, chief of requirements section, Army Ground Forces; and Brig. Gen. Theodore D. Weeber, director of industrial demobilization, Army Service Forces.

For the Navy, in addition to the commander of research and development, Rear Admiral J. A. Furer, are Rear Admiral E. L. Cochran, chief of the Bureau of Ships; Rear Admiral G. E. Hinsey Jr., chief of the Bureau of Ordnance; and Rear Admiral D. C.

Ramsey, chief of the Bureau of Aeronautics.

Civilian members listed last week are Dr. Karl Compton, MIT president; Dr. Jerome R. Neumann, NACA chairman; Dr. G. B. Jewett, Bell research chief, and Dr. M. A. Tice, of Carnegie Institute.

Objective—Backing officers of the services have been frankly concerned with the problem of research following that war and the naming of this big-coordinated committee is one phase of an effort to solve it while the examples of that war are available.

Once the committee reaches some conclusions and draws a presentation, the matter will be taken to the Woodburn Post-War Military Policy Committee of the House and a long-range program will be drafted.

Canadian Plane Busy

Fairchild plant of Canadian Car & Foundry Co. Ltd. will be in continuous production during 1946, according to Munitions and Supply Minister C. D. Howe. The plant is making Curtiss Meteors for the U. S. Navy and employs about 6,600 workers.

8 Plane Firms Use Super-Aluminum

At least eight aircraft manufacturers are now using a new super-strong aluminum alloy in the construction of experimental planes; it has been disclosed by Alcoa Inc. of America, which developed the alloy known as "2024."

It is intended primarily for use in long range bombers and fighters and is said to have a compressive yield strength twice that of conventional standard steel and tensile strength greater than that of any aluminum alloy now used in aircraft structures.

18 Years' Research—Dr. Francis C. Tracy, Alcoa's director of research, said the alloy is the result of 18 years of research by the company's metallurgists, and asserted it is approximately 90 percent aluminum with magnesium and zinc the major alloying ingredients. It is in quantity production in the company's mills.

Brewster Reconverts

Brewster Aerocraft Corp. is out of the aviation picture for the duration, and is reverting its Long Island City plant to the manufacture of civilian civilian goods.

With substantial quantities of aluminum and other materials in stock, Brewster is understood to be receiving a stand-by signal from the WPA before launching manufacture of kitchen utensils and flatware, furniture, hardware equipment purchased for Brewster by the Defense Plant Corp. is being returned.



New Joint Research Group Meets: Photographed at the first meeting of the new post-war research committee are, left to right: Rear Admiral J. A. Furer, coordinator of research and development; Dr. F. B. Jewett, president, National Advisory Committee for Aeronautics; and Maj. Gen. G. P. Echols, Assistant Chief of Air Staff.

Test Flights Near For Landgraf Copter

New engineering feature, advanced simulation of experimental model arouses interest in pending copter.

By SCHOLER RANGS

Test flights of the Landgraf helicopter, due soon in Los Angeles, will command nation-wide interest among engineers, manufacturers, and a "copter-crazed" public in view of original aspects of the project.

It is characterized as the first helicopter to show full inherent stability and "spinless" roll resistance is touted, if flight tests confirm the claims, predictions and test stand results.

Retractable Landing Gear — It will be the first helicopter to incorporate in the prototype model retractable landing gear and complete streamlining—to obtain in test flights a full evaluation of performance characteristics, including speed and operating costs, that will indicate performance to be expected of subsequent larger, commercial models.

For the first time, engine power will be transmitted to rotors by tension rod linkage of engine driving disks with driven disks attached to rotor hubs.



Ailerons on Rotor Blades—Directional control of the Landgraf helicopter will be exercised by cyclic operation of ailerons at the tip of the rotor blades.

Directional control will be unique, effected by cyclic operation of ailerons or color blades.

No Vibration — In a pre-flight test stand demonstration of the helicopter's driving mechanism and rotors, conducted for Aviation News by Fred Landgraf, designer and president of Landgraf Helicopters Co., complete absence of vibration at all speeds, including full power, was noted.

Landgraf's driving mechanism, believed to be the first practical ap-

plication of the principle, discloses its prime purpose in eliminating rotor backlash and torsional deflections that would attend employment of a torque tube drive and would prove hazardous in the helicopter's use of "no-shock" rotor blades rotating upon a common plane.

Weight Reduced—Other advantages cited for the tension rod drive are an appreciable reduction in materials weight and elimination of driving arms on rotor hubs. "Driving" and "driven" power disks operate in parallel planes and are connected by sets of 12 carbon steel (145,000 psi) rods set at an angle of 23 degrees from horizontal and spaced evenly around the periphery of each disk. Six of the 12 rods on each disk are under tension and six are at the moment when each disk approaches the phase of tension reaches dead center, at which time five rods are under tension. Each rod assumes increasing tension as it goes into a 90-degree position and goes out of action 90 degrees later. The maximum tension on any rod is 400 pounds under full power.

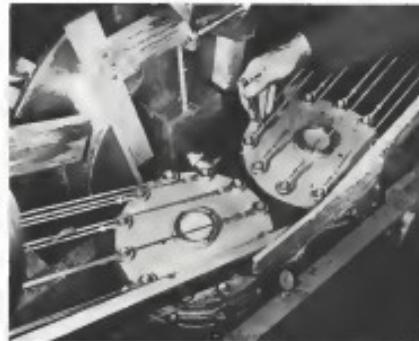
Landgraf discards as "extremely remote" the possibility of drive failure that might endanger synchronization of the 14-foot rotors, mounted on hubs separated by a distance of eleven feet.

Center-Holding Blades—A major reason for Landgraf's location of rotors less than a rotor diameter apart is to reduce the mass and weight of rotor supporting arms and still preserve sufficient strength to absorb gyroscopic loads imposed by cyclic adjustment of rotor spans to their tips.

The rotors move in opposite directions, blades moving forward in the area above the fuselage, eliminating the need for a tail rotor for torque compensation.

Rotor blades are secured around, hollow, tapered spars of balsa built integral with rotor hubs and designed to carry the bending moments at the hubs. The blades are constructed of wood spars and ribs covered by a 1/32" plywood skin shaped to the contours of an NACA 2313 airfoil. They are attached to spars by metal strips, which serve also as pitch adjustment hinges that are fixed through a series of small bell cranks and rods attached to the spar to vary the blade pitch from minus 20 degrees to plus 20 degrees uniformly for all blades.

Rotor Speed—Landgraf estimates that the experimental model's 650



Tension Rod Linkage—Engine driving disks of the new Landgraf helicopter with the tension rod links used to drive the rotor blade disks of the unique type helicopter. Designed by Fred Landgraf, former Douglas executive, the new helicopter will be test flown soon.



COOL Through Piston Rings

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ALTINIZED
PISTON RINGS

PISTONS...PINS...
HARDENED AND GROUND PARTS

McQuay-Norris is definitely air-minded. We are now suppliers of precision parts to the world's largest makers of aircraft motors. Our 34 years' experience in precision manufacture enables us to meet every demand of modern aviation for sturdy, unfailing precision parts. Your inquiries are invited.



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Machined Magnesium Parts
Cylinder Head Down Nuts
Hardened and Ground Parts

PARTS FOR PROPELLER ASSEMBLY

Machined Magnesium Parts
Piston Rings

EQUIPMENT FOR MAINTENANCE OF AIRCRAFT

Pistons for Oxygen Compressor
Piston Rings for Oxygen Compressor
Pins for Oxygen Compressor
Pins for Air Compressor
Pins for Air Compressor
Piston Rings for Air Compressor

LANDING GEAR PARTS

Machined Aluminum Pistons
Piston Rings
Hardened and Ground Parts

PRECISION WORKERS IN IRON, STEEL, ALUMINUM, BRONZE, MAGNESIUM



McQUAY-NORRIS MFG. CO. (AIRCRAFT DIVISION), ST. LOUIS, U.S.A.

CANADIAN PLANT, TORONTO, ONTARIO



NORTH AMERICAN'S NEW FILING DESKS:

Photo shows filing desks designed by production and planning files managers of North American Aviation, Texas Division, at Dallas. Clerks in these octopus desks handle three times the amount of filing previously possible. Started at standard desks, each clerk could reach no more than five filing trays from one position. In these desks she can reach up to twenty-five filing trays with a minimum expenditure of effort.

pounds gross weight will become airborn at a 10 degree blade pitch, using a rotor speed of 485 rpm, and a 3300 rpm. engine speed. For his prototype he uses an 85 hp. Pobjoy radial engine mounted in the fuselage directly behind the pilot. Cooling is attained with a centrifugal type section fan that draws rather than forces air around the cylinder.

While the blade pitch is manually controlled by the pilot, the engine throttle is connected to the pitch control arm to vary the power output automatically with pitch variations in hovering flight.

Lundström's rotor disks have a fixed forward inclination of six degrees from the vertical, indicating a normally forward-motion takeoff. Vertical takeoff and hovering flight will be accomplished by inclining the nose of the fuselage upward, shifting rotor disks into a horizontal plane through the control of rotor arms.

P Started in 1933—Lundström first began preparing preliminary data for his design in 1932, four years prior to the appearance in Germany of the Focke-Wulf helicopter. Actual construction of Lundström's helicopter began in 1946.

Texas 'Copter Plans

Construction of a two-blade helicopter by Hartung Aircraft Co. of San Antonio, Tex., under a licensing agreement with David J. Little, formerly with Don Ritter Associates in Detroit, was reported last week.

Little said the first model is expected to be test flown in about three months.

Industry Warned of Big Reconversion Top

Plant manufacturers must be prepared to do their part, U. S. officials point out after passage of bill.

High government officials were warning last week, after passage of the contract termination bill in a form that will permit speedy reconversion of plant facilities, that the aviation industry must be prepared to do its part of the job.

In contrast already announced, the government has found that it has to press for claims, and that recovery generally is not prepared for the volume of paperwork necessary for prompt settlement of outstanding claims.

Hairy Volume Expected—These government officials said that, with the passage of the contract termination act and the setting up of contract termination teams and schools for the training of members of these teams, the government was getting ready to deal with the heavy volume of controversies that will come with the collapse of Germany.

Some aviation companies already have begun establishing units that will be concerned solely with the termination of contracts, but many others have yet to make provision for the handling of this work. The efficiency with which companies can move will be a determining factor, in most instances, of the speed with which settlements can be completed.

Mechanized Settlements—While

there is considerable talk in Washington circles about the so-called "harmonized," or company-wide settlement method, there remains doubt that it will prove feasible. The Army is known to feel that it will not prove satisfactory in most cases. On the other hand, the civilian X-ray planners are known to favor the method on the grounds that it will permit greater efficiency and speed, particularly in the case of large contractors—in the 18 percent of industrial spending that 60 percent of war orders.

Whatever the method, the government officials warn that terminations are going to mount steadily until the end of the European phase of the war and suddenly after that. It is the duty of industry to have the organization ready to meet the problems, they say.

Automotive Output Doubles Prewar Top

Deliveries of war products by the automotive industry are double the amount predicted in the peak production year of 1941, with \$166,000,000 deliveries of war materials from the period September, 1948, to June 1, 1949.

According to George Remmey, managing director of the Automotive Council for War Production, manufacture of aircraft, parts and subassemblies, makes up approximately six billion dollars worth of the total, with 266,000 aircraft engines included. Other items include military vehicles with spare parts, over five billion dollars; and marine equipment, \$1,284,000,000; and munitions and ammunition, equipment, over \$600,000,000 each.

New Tube Bender

A new manually operated tube bender, which will produce 1,000 bends an hour has been designed by Douglas Aircraft and improved and is now being manufactured under exclusive license by Leonard Precision Products Co., Gardena, Calif. It will handle non-ferrous tubing from three-eighths to one and one-quarter O.D., producing from one to 10 different bends in a single nine-foot length of tubing. These can be produced to any specified degree of angle up to 180 degrees and at any radial angle.



partners in AVIATION PROGRESS

No single thing deserves all the credit for winning the conquest of the air. As in most all of man's great achievements, the credit is due to the close partnerships formed between a group of widely separated sciences. A good example is provided by Aeronautics and Electronics.

Even stop to think how important the electron vacuum tube is to modern flying...and how increasingly important it becomes as aviation progresses? Remember! It's through dependable communication, instrument land-

ing and other electronic devices that commercial aviation achieved its pinnacle of efficiency as to safety and dependability.

Eimac tubes and aviation have virtually grown up together as partners in their rapid progress. Superior performance and great dependability have made Eimac fine choice of the airlines... *Follow the leaders to*

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*We're for better sets of
BROADCAST TUBES!*
17 broad ranges
in production.
The largest domestic
producer of high
vacuum tubes and
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manufacturers of
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tubes in the world.

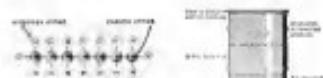
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Plants located at: San Bruno, California

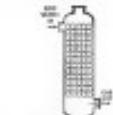
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**These pills
help cure the
high-octane
headache**



This is a cross-section of ordinary gasoline. Like any gasoline it will burn, but the arrangement of atoms causes severe detonation in high-compression aircraft engines.



Here is how it is used: Ordinary gasoline, vaporized, goes into a chamber filled with millions of these little catalyst pills. When the vapor touches the catalyst—



Old fashioned refining produced one gasoline that was good enough for aircraft engines—but only a little, and it wasn't good enough for today's planes.



its molecules are split open and the atoms arranged in a new pattern. Our scientists devoted years of research to finding the catalyst that would accomplish this best.



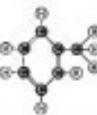
The most plentiful ordinary gasoline can be turned into high-octane aviation fuel after hydrogen and carbon atoms are rearranged to form a different kind of molecule.



The new catalyst developed by Standard of California does the trick. A catalyst causes a change in gasoline but does not actually enter into new products.



This is how the molecule looks after it has been affected by the catalyst. Standard scientists have made it non-detonating. It is now safe for aircraft engines.



Now, when every pint of aviation fuel is precision-made, making thousands of additional battle-shouts to another triumph of Standard aviation research.

STANDARD OF CALIFORNIA



TRANSPORT

War-Curbed Airlines Maintain Mileage Near Pre-War Level

Despite suspension and loss of equipment, domestic network of more than 60,000 route miles is in operation, compared with 65,152 before Pearl Harbor.

By MERLIN MICKEL

Although their lack of equipment has not been fully alleviated and many routes still remain suspended while others are yet to be started, the domestic airline network of more than 44,000 route miles compares well, considering the war, with their 48,152-mile operation before Pearl Harbor.

Actually, with suspensions and those certifications under which flying has not yet started, route mileage authorized is almost up to 65,000. This figure from Civil Aeronautics Board records includes virtually all of the approximately 6,000 miles granted by CAB since July 1, 1942, but misses a few miles. Most of the latter are at individual points. Some have yet to be completed on new awards—such as those in the New York-Boston route document.

► **CURRENT OPERATING MILEAGE**—Operating route miles at the first of this month, the Board's figures indicate, were 48,681. Authorised mileage was 54,896. Both, of course, vary as new route cases are decided.

Here is the breakdown on operating mileage: All American Aviation, 1,238; American, 7,917; Braniff, 1,074; Chicago and Southern, 1,353; Colonial, 335; Continental, 2,346; Delta, 1,162; Eastern, 4,861; Hawaiian, 363; Inland, 1,337; Mid-Continent, 1,012; National, 1,981; Northwest, 374; Northeast, 2,322; Pennsylvania-Central, 1,764; TWA, 5,095; United, 8,249; and Western, 1,653.

Also to be included in the latter set of figures are Colganair's 81 miles, authorized but suspended, and Eastern's 679 miles of unused feeder routes. Much of this mileage will start soon when equipment is available. AF American is the only exclusively public line in the list. Hawaiian is authorized and opera-

New Trips

Airline schedule changes reported to Civil Aeronautics Board effective July 1 include American Airlines—Three additional round trip daily, New York-Boston on AM 16, one additional round trip daily New York-Dallas on AM 23.

Braniff Airways—One additional round trip daily, Chicago-Dallas on AM 9, one additional round trip daily Houston-Dallas on AM 30, one additional round trip daily Houston-Casper-Casper on AM 19, one less round trip daily San Antonio-Casper-Casper on AM 18. Fort Worth is being served on one of the daily round trips as AM 9 for the first time in about five years. It had been suspended since Jan. 1, 1943, AM 19 but was re-opened on May 1.

Routes Air Lines—Inaugurated service on AM 47 with one round trip daily, St. Louis-Washington via Louisville and Lexington, with number to be added about July 10; discontinued one round trip daily between N. Y.-Miami on AM 6.

Kansas City route and its extension of AM 26, totaling about 866 TWA and Eastern's routes into Washington, Western between Los



AT FEEDER AIRLINES MEETING:

Three phases of interest in development of feeder airlines—manufacturers, government and the operators themselves—are represented here. Left is Harry Springer, President of the Feeder Airlines Association, William A. Morris, Assistant Secretary of Commerce, and Harry Springer, president of the Feeder Airlines Association, at whose recent congressional meeting in Washington this picture was taken. Aviation Corp. and Consolidated Paliss Aircraft Corp. gave a dinner for association members. The organization made provision for industrial membership by aircraft and equipment manufacturers.

FREE ENTERPRISE

The Obligation of Management and Labor to Cooperate...in War...in Peace

The lesson is not We have unleashed our full might for military victory. We have confidence that our great strength will bring success. We are strong because we have achieved unity in mobilization and in combat.

Though victory appears assured, we cannot rest until we have done everything in our power to speed the day when death and destruction are halted.

The home front is an important factor in this time element, for the fighting power of our Armed Forces depends upon their weapons. Napoleon's army fought "on its stomach"—men against men. Eisenhower's men fight on their tanks—tanks, artillery, machine guns, heavy bombers.

As never before in the long succession of wars, the legends of heroic deeds on the battlefields in this world conflict will be paralleled in history by the great weapon platoons on the production fronts. Along with these heroic achievements of our Armed Forces, the world will long remember the record of our production accomplishments which have made us the strongest military power in the world, as well as the arsenal of democracy.

As the conflict reaches its climax, in battles growing fiercer and more destructive, our responsibility becomes greater and more critical. We must coordinate our productive efforts with the same ingenuity and the same precision with which our Armed Forces have coordinated them. We do not waste the productivity of a single man or machine in these critical days.

As our leading craft are discharging their fighting men on the beaches of Europe and the Pacific, they will not wait for equipment. No interference with war production for any reason can be tolerated. There must be no quiet lines in America!

The landing of American troops in France virtually has stopped all strikes in the United States. This is important and encouraging news because the prelude to Invasion, unfortunately, has been an epidemic of strikes. Thus lost through strikes, during the first four months of 1944, was double that lost during the same period last year. April saw more strikes than any other month since Pearl Harbor, and in May the record again was broken. Here is what happened within two weeks in May:

Nine thousand men in six Chevy plants in Detroit were out when a jurisdictional dispute in a "solid peg" between the American Federation of Labor trustees and the

Congress of Industrial Organizations find their demotion

A three-day sit down strike occurred among 950 employees in the B. F. Goodrich plant over the refusal of the company to discharge a supervisorial dissatisfaction to the union.

Thirty thousand men in the Chevrolet transmission and axle plant at Saginaw struck over a nonexisting rule and a change in shift scheduling rates.

Two thousand employees at the Brown and Sharpe Machine Company walked out when a woman was hired to fill a job long held by a man.

Production of pencils, lead pencils, and other musical supplies was halted at five Detroit plants of the Pencil Dodge Company as 1900 employees struck for a ten cent raise.

Over 25,000 lumber workers in the Pacific Northwest struck because the W.L. Boeing Board denied them demand for a wage increase.

At the end of the third week of May, 70,000 workers in 25 plants in Detroit were idle because of strike.

Strikes in Detroit alone reduced production as much as a moderately successful German air raid would have done. Far more important than their effect on output is the effect of strikes upon national unity and morale. To our home front and to our Armed Forces, strikes belie our pledge to back the attack with all the power at our command. Hence, strikes hurt our all-out war effort.

Prompt and decisive action is needed to keep America free from strikes for the remainder of the war. Steppage of work on the production lines cannot be condoned while lives are being lost in fighting the enemy.

Most union leaders realize this need and are preparing to impose discipline upon their members who violate the no-strike pledge. The Warehouse Division of the International Longshoremen's and Warehousemen's Union (I.L.W.U.) recently declared: "Strikes in this time of war are treason against the nation and betrayal of the interests of labor." A message sent by William Green to all heads of American Federation of Labor unions stated:

"Day is here. From now on until Hitler is finally crushed, every worker entitled to the same level of protection must now stand behind a joint front of business and labor. The United States must be won to that front immediately. I call on all of you, as members of the American Federation of Labor, to do your duty. The American men who are risking their lives in the cause for us to maintain maximum production make up an obligation. Until victory is won every worker must give the same efficient service that our Armed Forces are giving on the field of battle."

Strongest of all was the appeal of R. J. Thomas, president of the United Automobile Workers, to members of his union:

"Our union cannot survive if the nation and our allies hold that as we are obstructing the war effort, there can be no such thing as legitimate picket lines. I appeal to our membership: If you value your union, if you want to live and see when the war is won certain members and our brothers will be held responsible. If we do not, then we will be union after the war."

Union officials are entitled to vigorous support from management and government in their efforts to prevent strikes. Should any strike be an accommodation of settled grievances, management are overwhelmed, and many union shop stewards are new and inexperienced and do not always do their part in turning down cases which lack merit. Both of these conditions make it easy for large numbers of untrained grievance to pile up. A speeded drive to clean up unsettled cases and to prevent new accumulations of them is not set by which management and local union officials can help restore the war.

The government too has a contribution to make to the prevention of strikes—both through the prompt disposal of disputes and through firm action against the leaders of strikes. The National War Labor Board and the Regional Boards are disposing of over five thousand cases a month and have made an excellent record in reducing their backlog. Nevertheless, the boards still have many old cases, and about one out of four strikes has been an effort to get action from one of the labor boards. The boards are entitled to cooperation from employers and unions in keeping down their backlog. In instance after instance, cases are disposed in the lap of the board before the union and employer have made a real effort to get a meeting of minds and to work out settlements.

In the present emergency, strikes are an expression of the lack of adequate understanding and trust between union and management. Any future great strike in industrial strife knows will be due to misunderstanding. After this war the country must not go through another 1940 when the first out of strikes reached an all-time high. With 17 million workers, or almost half of the non-farm employees of the country, in trade unions, the power and prestige of unions is greater than ever. The long-run prosperity of the country requires that business and labor learn how to cooperate in supporting the policies which produce the largest possible profits and the longest possible和平。

Although business is primarily interested in the largest possible profits and labor is primarily interested in the highest possible payrolls, both objectives call for the same basic conditions. Payoffs depend upon the profit motive for profits. If bad relations between business and labor or erratic public policies cause employers to take a pessimistic view of the outlook for profits, both employment and payrolls will be depressed.

Individual unions and individual employers always will have differences over wages and hours and the status

of labor in particular plants or in particular occupations. Some disputes on such issues are inevitable, but resort to arbitration and early intelligence can help greatly in avoiding strikes in the long run. Cooperation between labor and management is an economic necessity. In our kind of economy, payoffs and profits both depend upon the willingness and the ability of business and labor to work together in creating the conditions under which enterprise flourishes.

The foundation for intelligent and effective cooperation must be accomplished by skilled and imaginative managers in plants throughout the country who are willing to help unions with their problems, and who are able to interest union leaders and their members in the problems of business. Union members and their leaders are keenly interested as a role in the efforts of management to win new markets. They know that jobs depend upon the success of management in improving the product, adding new items to the line, and, less frequently, cutting costs and prices. Employers like to be kept informed about what management is doing with problems it is meeting, and what success it is having. Most of all, they like to have an opportunity to contribute their ideas and suggestions.

The recent episode of strikes should not blind us to the fact that even today there are more plants where management and unions are on good terms than ever before in the country's history. Consider, on the one hand, the extensive and constantly growing efforts of unions to train and develop shop standards and, on the other hand, the efforts of employers to teach foremen how to carry out the new responsibilities imposed upon them by union agreements. Unions and management together are learning how to operate together such technical devices as time study and job evaluation. Managers who, several years ago opposed the provision of wages to interpret union agreements and to settle decentralized cases today are taking the lead in suggesting such arrangements.

The war is reaching a crisis, and all groups in the country must be aware as never before of their common interests. This presents an opportunity which should be seized to lay the permanent foundations for more effective team work in American industry. Let history record also were the days when Europe was being liberated also were the days when owners and employees were making unprecedented progress in preparing American industry for the return of the armed men and women of our efforts and our sacrifices.



President, McGraw-Hill Publishing Company, Inc.

Asks Easing of Rule On Flying Altitude

Frrederick Lee application sees no
value of regulations as "need,"
if pickup operations are to pay.

By SCHOLES BANGS

The return of under-weather contract flying, reminiscent of "old air mail days," is forecast by Ted Mitchell, operations manager of Southwest Airways, which has filed for a West Coast route to serve more than 300 communities and cities. Mitchell believes it will be safe and that revision of Civil Air Regulations to permit it will be a "must" if feeder operations are to pay.

"We will not be able to afford to fly at altitudes of over 1000 feet above ground," he says.

Airline Route Example. Mitchell's conviction that operations below 1000 feet are safe is supported by Southwest's experience in operating a cargo feeder schedule for the Air Transport Command over a terrain typical of that involved in the company's feeder application.

The company has flown one million miles, averaging 1869 operational miles a day, and carried more than 1,000,000 pounds of cargo without loss.

A Thorough Test Made. Much of Southwest's flying has been under conditions that have enabled thorough testing of the safety of low-altitude flight.

He believes factors involved in assuring passenger safety in commercial low-level feeder operations will be:

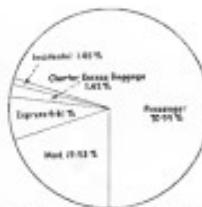
• Reliable point-to-point radio communications and accurate weather analysis.

• Rapid enforcement of safe flight procedures applied to a given route.

• Use of multi-engine airplanes.

Southwest's feeder line planning calls for the use of twin-engine monoplanes (35 to 40 to begin service if the full proposed route is certified) carrying 12 passengers and 1000 pounds of mail and express. A cruising speed of 184 mph is proposed to provide a posted operating speed of 138 mph.

Ground Time Factor. More critical than in long cross-country operations will be the ground time of feeder airliners at staging points, and Mitchell believes it possible to limit time-on-ground at each stop to five minutes. When Southwest began ATC operations, grounded time at stops averaged 25



AIRLINE REVENUES AND EXPENSES FOR 1942

These new charts show the source of domestic airline revenues in 1942 and their expense outlets. Revenues totaled \$121,213,023; expenses \$107,847,547.

minutes. Grounded time now averages 20 minutes per stop, but adds approximately commercial operations have given grounded times ranging from a maximum of six minutes to a minimum of slightly less than three minutes per landing.

Other applications include:

Wisconsin Central Airlines,

Christiansburg, W. Va., for a temporary and/or permanent commercial route between Chicago, Ill., and Duluth, Minn.; Chicago and Chantilly, W. Va.; and between Marquette, Mich., and Minneapolis-Minneapolis.

Fifty-one percent of the airline's stock is owned by the Four Wheel Drive Auto Co., Cleveland, which also owns controlling interest in a trucking company.

Lyon Van & Storage Co., Los Angeles, Calif., for a certificate to carry aircraft parts, household goods and similar items by plane or truckage routes anywhere in the United States on a bill-and-demand service. Another application requests similar rights in Canada, Alaska and Mexico.

Low altitude applied for are:

Seattle, Wash., to Great Falls, Mont., via Spokane, Wash., Coeur d'Alene, Idaho, and Kalispell, Mont.

Cheyenne, Wyo., to Omaha, Neb., Casper, Wyo., to Omaha, and Brookings, S. D., to Omaha.

Harris, S. D., to Meridian, Miss.

Casper, Wyo., to North Platte, Neb.

Scottsbluff, Neb., to Alsworth, Neb.

Billings, Mont., to Casper, Wyo.

Billings to Rock Springs, Wyo.

Bozeman, S. D., to Rawlins, Wyo.

Rawlins to Jackson, Wyo.

Denver, Colo., to Breck Springs, Wyo., and Lander, Wyo., to Casper, Wyo.

American Airlines asked to extend AM 30 from Fort Worth to Houston, Texas. This extension

First meeting of the West Virginia Aviation Forum held last week in Charleston, W. Va., demonstrated widespread enthusiasm in that state for aviation both commercial and private.

The forum, sponsored by the Aviation Committee, West Virginia Planning Board, the State Board of Aeronautics, the Aviation Consultant to the Governor, the West Virginia Civil Air Patrol, and the National Aerospace Association, was attended by nearly 200 persons who gathered to hear the views of

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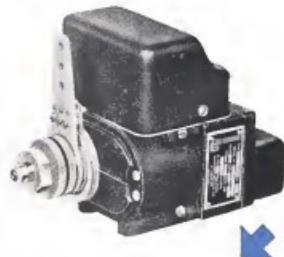
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